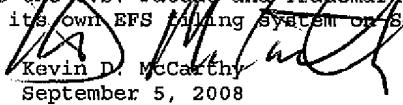


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Typed Name: 
Kevin D. McCarthy
Date: September 5, 2008

Patent 0-06-112 - 16290/US/03

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor: Bar-Yaakov et al.
Serial no.: 10/580,661
I.A. Filed: December 2, 2004
Title: FLAME RETARDANT ADDITIVE OF FLUOROPOLYMERS
IN FLAME RETARDANTS
Examiner: Nicole M. Buie
Art Unit: 1796
Confirmation: 5008

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir/Madam:

Amendment and Response

This response is in reply to the office action mailed on July 9, 2008.

Claims amendments

1. Please amend claims 1 and 2 as shown below.

1. *A composition consisting essentially of a solidified molten suspension of a solid fluoropolymer evenly dispersed in a molten flame retardant.*

2. *A composition according to claim 1, consisting of particles, said particles comprising one or more fluoropolymers and flame retardants.*

Claims Rejection – 35 USC § 112

2. Claim 2 is rejected as being indefinite for failing to particularly point out and distinctly claim the subject matter.

The amendment of claim 2, in the Applicant's opinion, renders the Examiner's objection moot. Reconsideration is respectfully requested.

Claims Rejection -- 35 USC § 102

3. Claims 1-7, 9-11, 25-28 and 30-31 are rejected as being anticipated by Yamamoto et al. (JP 049324093). The Applicant respectfully traverses the Examiner's rejection. In view of the English machine translation of the above publication and the comments of the Examiner, the Applicant respectfully submits the following remarks:

JP 049324093 teaches a composition comprising polytetrafluoroethylene (PTFE) and an auxiliary flame retardant (aFR) in a mixture of two solids, whereas the instant application relates to a composition consisting of fluoropolymer homogeneously dispersed in a flame retardant (FR). The JP 049324093 composition, thus, differ from the instant composition both in chemical and in physical properties.

More specifically, JP 049324093 relates to a PTFE composition, comprising PTFE and at least one ingredient selected from among an auxiliary flame retardant (aFR), a heat stabilizer, and a mold release agent (see abstract and claim). The Applicant respectfully submits that an aFR is not comparable to a flame retardant (FR), which is used in the present invention ([0023], lines 6-7). A person skilled in the art realizes that aFRs do not have the same fire retarding properties as FRs, and would know that aFRs, which are commonly called "synergist", work together with a FR. FRs are mentioned by Yamamoto et al. in a long list of "additives" ([0015], line 6), clearly showing that such ingredient is not essential to their invention.

Yamamoto et al. teaches that their aFRs are chosen among inorganic compounds ([0012], lines 3-10) or organic thermosetting resins ([0012], lines 10-12), while the FRs used in the present invention are organic thermoplastics ([0026]). In addition to the difference in fire-retardancy properties, it is known in the art that aFRs have particularly high melting point if compared to FRs. As an example, Yamamoto et al. uses antimony trioxide, which has a melting point of 655°C, in combination with PTFE which has a melting point of 327°C. Yamamoto et al. neither teach melting the auxiliary flame retardant, nor mixing solid PTFE in said molten solution, during the preparation of their compositions. Indeed, in view of the melting point of the two above-mentioned compounds, such process would have resulted in melting the PTFE also. The present invention uses FRs having a melting point below 300°C (page 8, last line) in order to avoid melting the fluoropolymer particles when it is added to the melted fire retardant solution (page 11, lines 16-20). Such process leads to compositions having fluoropolymer granules "coated" with the fire retardant. This is structurally different than the compositions disclosed in Yamamoto et al., wherein PTFE and the aFR are clearly separated entities before melt kneading with the thermoplastic resin, the PTFE being used as a binder (abstract).

In addition, it should be noted that Yamamoto et al. teach that the granular PTFE is prepared in a first step ([0015] and [0020]), consisting in mechanical crushing and does not involve the melting of any of the components. In a second step, the granular PTFE is melt kneaded with a polymer and other additives, such as a flame retardant ([0016], [0017], and [0021]). In contrast, the present invention teaches a solidified suspension of a solid fluoropolymer in a molten flame retardant, which is prepared by melting a flame retardant or flame retardant precursor, adding a solid fluoropolymer and mixing it into the molten material, and then solidifying the suspension by cooling or polymerization. It is then particulated. In a second step, the solidified suspension of fluoropolymer and flame retardant can be melt kneaded with a polymer and other additives. Therefore, it should

be clear to the Examiner that claim 1 encompasses only the solidified composition of the first step.

In view of the above, the Applicant respectfully submits that the examiner errs on several points, when comparing the present invention with Yamamoto et al. on page 4 of the outstanding Office Action, alleging that "when the granular PTFE composition is crushed immediately at the time of melt kneading, the flame retardant distributes uniformly into resin (which implies the fluoropolymer is evenly dispersed in the flame retardant), absent objective to evidence to the contrary." The Applicant notes that: 1) the Examiner uses the term "flame retardant" whereas it should be the "auxiliary flame retardant"; 2) the Examiner describes dispersion in the resin by melt kneading, which is the second step, while present claim 1 describes the first step; 3) the Examiner describes a molten material while present claim 1 describes a solidified molten suspension; and 4) the Examiner's statement requires the presence of the resin, while present claim 1 does not include the resin.

Therefore, in view of the above, the Applicant believes that amended claim 1, and all the claims depending from it are novel over JP 049324093 and that the Examiner's rejection is traversed.

Claims Rejection – 35 USC § 103

4. Claims 8 and 29 are rejected as being unpatentable over Yamamoto et al. (JP 049324093).

As claim 1 is believed to be novel and inventive over Yamamoto and al., therefore claims 8 and 29 should be also novel and inventive and the Examiner's rejection is traversed.

5. Claims 12 and 13 are rejected as being unpatentable over Yamamoto et al. (JP 049324093) in view of Nishihara et al. (US 6,093,760).

The Applicant respectfully submits that, the melting point and the melt viscosity are critical features to achieve the homogeneous dispersion of the fluoropolymer granules in the composition of the invention (page 8, paragraph 3).

In the present invention, a suspension of fluoropolymer in a flame retardant is prepared by melting a flame retardant or flame retardant precursors, adding a fluoropolymer, mixing it into the molten material, and then solidifying the composition by cooling or polymerization. The solidified composition, containing fluoropolymer granules evenly dispersed in a fire retardant matrix, is then particulated. Said solidified mixture can be then melt kneaded with a polymer or resin and other additives, helping to disperse the fluoropolymer.

In contrast, and as explained above, Yamamoto et al. do not teach mixing PTFE with a fire retardant prior to melt kneading with a polymer or resin. Furthermore, Nishihara et al. used low viscosity fire retardant to prevent reducing the extrusion stability, and not to ease the dispersion of a fluoropolymer in a melt solution of fire retardant. Therefore, JP 049324093 and US 6,093,760, alone or in combination, would not have given to an average skilled person in the art, the technical elements to obtain compositions as claimed in the present application.

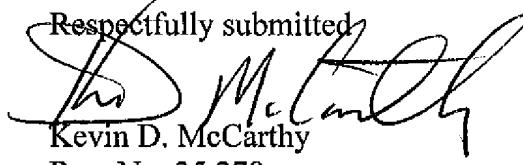
Therefore, the Applicant believes that the Examiner's rejection is traversed.

Conclusion

6. It is believed that after the above explanations and amendments, the amended claims define a novel and non obvious invention. It has been shown that JP 049324093 teaches neither compositions comprising fire retardant as an essential component, nor compositions comprising fluoropolymer granules evenly dispersed in a solidified molten fire retardant solution. Furthermore, it has been shown that a person skilled in the art would not have considered US 6,093,760 when aiming at homogenous dispersion of a solid fluoropolymer in a molten fire retardant.

7. As it is believed that all of the rejections set forth in the Office Action have been fully addressed, favorable reconsideration and allowance are earnestly solicited.

Respectfully submitted,



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